Chesapeake Bay and Virginia Waters Clean-Up Plan

- Progress Report -

Submitted by
The Honorable L. Preston Bryant, Jr.
Secretary of Natural Resources
Commonwealth of Virginia

To
House Committee on Agriculture, Chesapeake and Natural Resources
House Appropriations Committee
Senate Committee on Agriculture, Conservation and Natural Resources
Senate Finance Committee

October 2007

COMMONWEALTH of VIRGINIA

Office of the Governor

L. Preston Bryant, Jr.
Secretary of Natural Resources

October 10, 2007

TO: Chairman and Members, House Committee on Agriculture, Chesapeake and Natural Resources

Chairman and Members, House Appropriations Committee

Chairman and Members, Senate Committee on Agriculture, Conservation and Natural Resources

Chairman and Members, Senate Finance Committee

FROM: L. Preston Bryant, Jr., Secretary of Natural Resources

SUBJECT: Progress Report on the Chesapeake Bay and Virginia Waters Clean-up Plan (House Bill 1150; 2006)

I am pleased to present to you the first Progress Report of my office's *Chesapeake Bay and Virginia Waters Clean-up Plan*. This report is submitted per Chapter 204 of the 2006 Acts of Assembly.

The directive for the construction of the Clean-up Plan – and this progress report – resulted from House Bill 1150 (2006), which was sponsored by Delegate L. Scott Lingamfelter of Prince William County and signed into law by Governor Timothy M. Kaine on April 3, 2006.

This report describes progress in implementing the Clean-up Plan for the first half of 2007. Clean-up activities are the responsibility of many state agencies, including the Virginia Department of Environmental Quality (DEQ) and the Virginia Department of Conservation and Recreation (DCR).

In addition to reporting on progress, this report also identifies significant impediments to plan implementation – seeking to efficiently communicate both progress and challenges.

The table of contents follows the structure and elements of the original Clean-Up Plan finalized in February 2007. To ensure efficient reporting, we focused on the specific Objectives and Performance Measurements included in that plan.

To indicate relative levels of progress, one of the following symbols has been assigned to each of the goals and objectives of the plan:

▲ indicates substantial progress toward the goal;

▶ indicates progress toward the goal; and,

▼ indicates limited progress during this reporting cycle.

We also have combined some statutory reporting elements within this report per Chapter 637 of the 2007 Acts of Assembly. Future iterations of this report may include additional reporting elements so as to fully integrate all relevant reporting in an efficient and effective manner.

We look forward to continuing to work with your committees, other interested legislators, and all Virginia citizens who understand the need for us to do all that is practicable to prevent pollution from entering our Commonwealth's streams, rivers, lakes, and estuaries.

An electronic version of this document may be viewed on the website of the Office of the Secretary of Natural Resources, which is located at: www.naturalresources.virginia.gov/Initiatives/WaterCleanupPlan. Should you have questions or desire additional information, please let me know.

LPBJr/cbd

Enclosure

TABLE OF CONTENTS

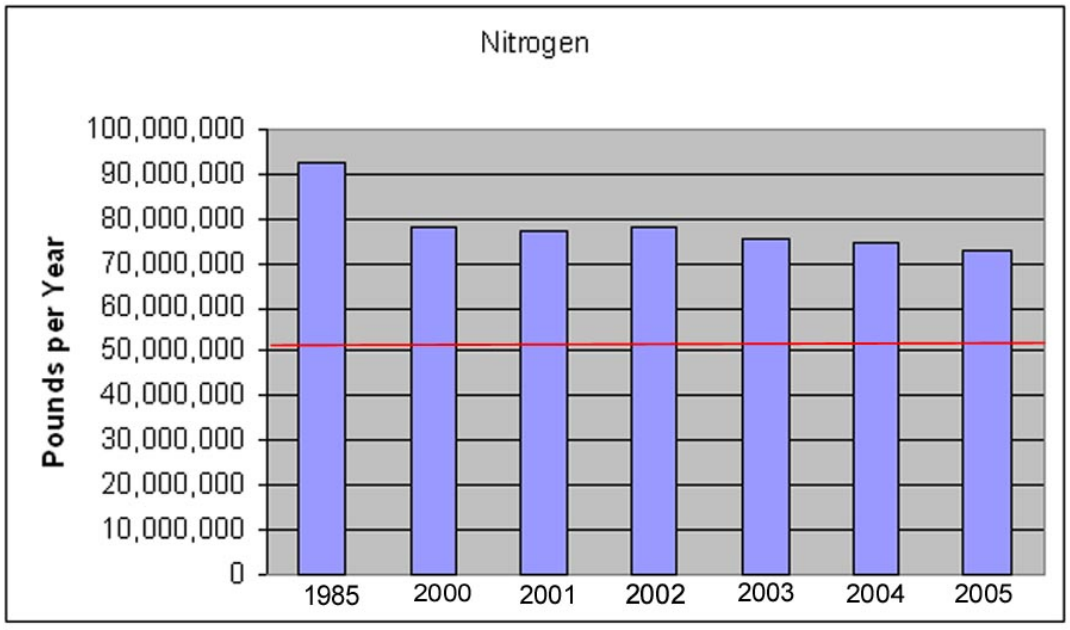
I. Measurable Environmental Outcomes

The Department of Environmental Quality (DEQ) reports on the status of the water quality in all of Virginia's waters through the biennial Water Quality Assessment Report. The next assessment is scheduled for completion by April 2008.

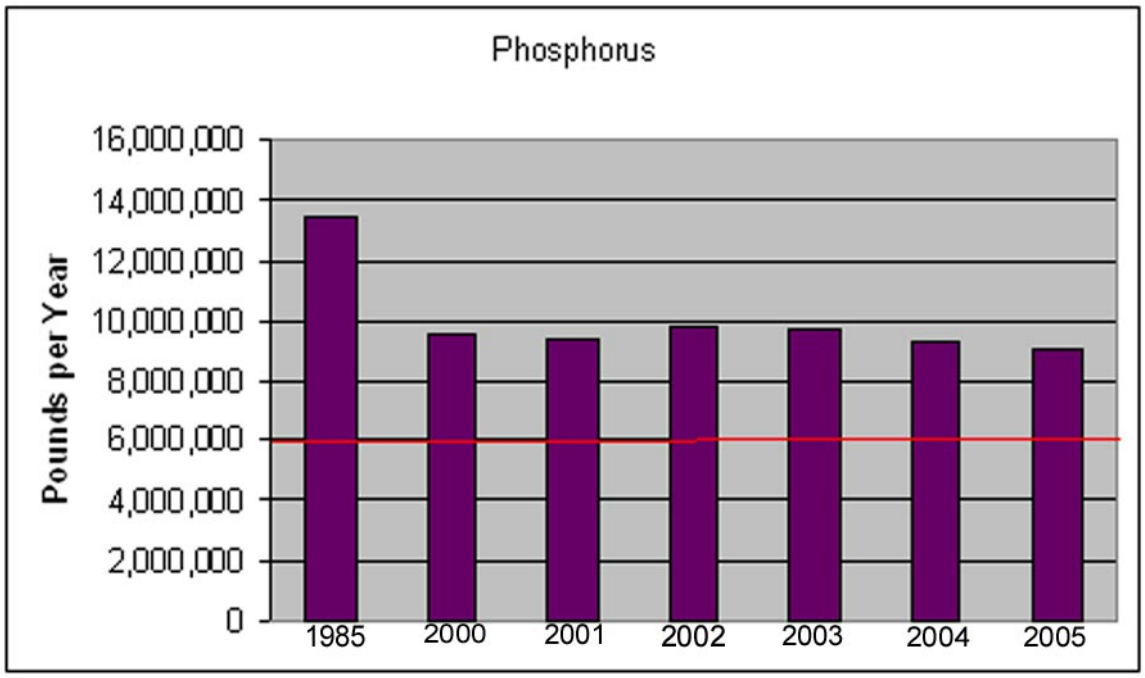
Pollution Reductions – Nitrogen, Phosphorus, and Sediment

The most recent estimates for the quantity of nutrient and sediment pollution entering the Chesapeake Bay from all sources in Virginia through 2005 [the most recent Virginia-wide data available from the Chesapeake Bay Program] are shown in the following charts and are compared to Virginia's pollution reduction goals. [Note: Pollution reduction progress is measured against pollution levels that existed in the 1985 baseline year.]

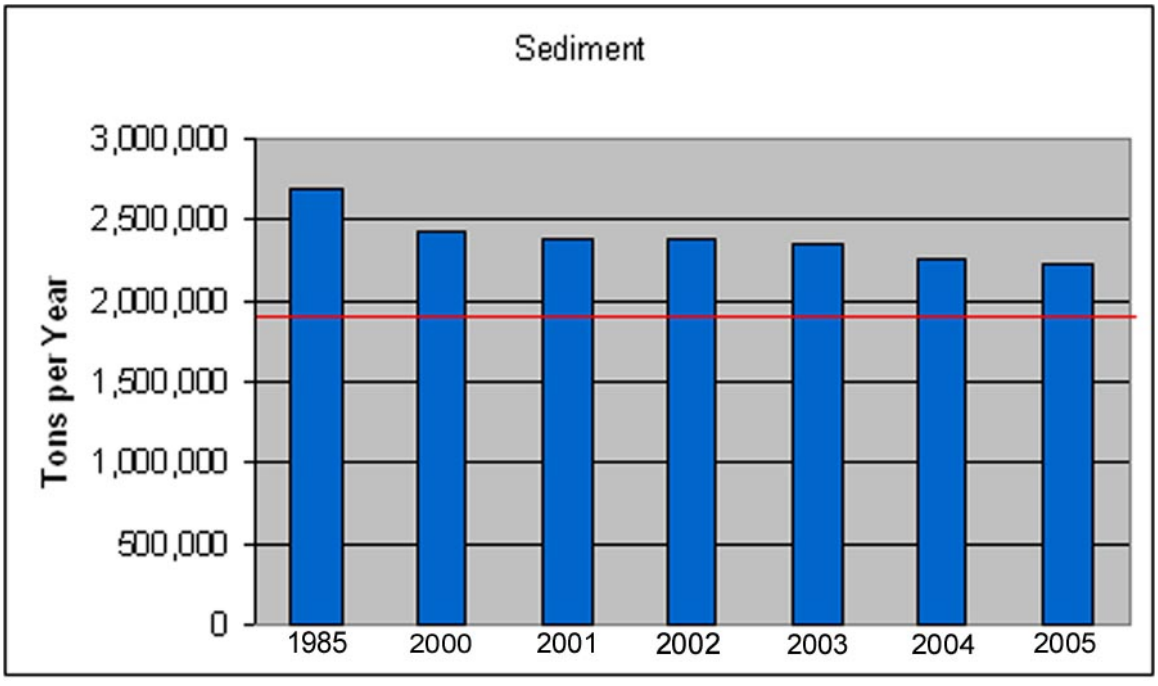
For nitrogen, Virginia has reduced its annual loading by 19 million pounds, but still needs to reduce loads by an additional 22 million pounds to meet the assigned allocation of 51.4 million pounds.



For phosphorus, Virginia has reduced its annual loading by 4.5 million pounds, but still needs to reduce loads by an additional 3.0 million pounds to meet the assigned allocation of 6.0 million pounds.



For sediment, Virginia has reduced its annual loading by 450,000 tons, but still needs to reduce loads by an additional 300,000 tons to meet the assigned allocation of 1,941,000 tons.



II. Clean-Up Strategy Components

A. Wastewater Category

1. Wastewater Dischargers of Nutrient Pollution into the Chesapeake Bay

Performance Measurement: Continuous tracking of upgrades underway at municipal and industrial wastewater facilities, with annual compilations of the nutrient reductions achieved.

The General Watershed Permit, which became effective on January 1, 2007, authorizes the discharge of nutrient pollution from wastewater facilities within the Chesapeake Bay watershed. All of the 125 individual significant dischargers who were required by law to register for coverage under the Watershed General Permit have done so.

The Chesapeake Bay Watershed Nutrient Credit Exchange Program [§ 62.1-44.19:14 C3] requires that "within nine months after the initial effective date of the general permit, the permittees shall either individually or through the Association submit compliance plans to the Department for approval. The compliance plans shall contain, at a minimum, any capital projects and implementation schedules needed to achieve total nitrogen and phosphorus reductions sufficient to comply with the individual and combined waste load allocations of all the permittees in the tributary." All but 12 permittees submitted their compliance plans by the deadline of August 1, 2007. DEQ staff are currently working with the 12 outstanding facilities to ensure that they submit compliance plans in a timely fashion. One single plan was submitted by the Nutrient Credit Exchange Association on behalf of 96 significant dischargers and 6 non-significant dischargers. All compliance plans are currently under review by DEQ staff. Based upon the outcome of that review DEQ and the State Water Control Board, if necessary and in accordance with § 62.1-44.19:14 C2, will consider modifying the Watershed General Permit to revise one or more of the tributary compliance dates for total nitrogen, total phosphorus or both.

The following table presents the 2006 delivered loads of nitrogen and phosphorus pollution from point sources within each of Virginias river basins compared to the point source allocations (i.e. Waste Load Allocation – WLA) to be achieved by January 1, 2011:

River Basin	Total Nitrogen Delivered Load (lbs/yr)		Total Phosphorus Delivered Load (lbs/yr)	
	2006	WLA	2006	WLA
Shenandoah-Potomac	5,092,072	3,874,688	267,767	209,697
Rappahannock	476,073	462,794	53,580	39,124
York	1,397,773	963,875	138,009	161,536
James	14,838,096	13,890,119	1,227,602	1,349,491
Eastern Shore	125,470	31,370	4,160	1,780
TOTALS =	21,929,484	19,222,846	1,691,118	1,761,628

Summary of Water Quality Improvement Fund Point Source Program Activities

The most recent solicitation for grant applications under the WQIF Point Source Program closed on June 18, 2007. In addition to the applications submitted in late 2005 through early 2006, a status summary of the grant projects is as follows:

- Grant requests for the design and installation of nutrient reduction technology (NRT) have now been received from 78 eligible applicants.
- Total cost-share requested for these 78 eligible projects is approximately $724 million – an increase from the 60 grant applications totaling $609 million reported in the February 2007 Clean-Up Plan.
- In addition, $3.6 million has been requested for eligible Technical Assistance projects.
- 17 grant agreements have been signed to date, committing a total of approximately $209 million in cost-share funds (see table on next page for additional pollution reduction information).
- Another 29 agreements could potentially be signed in FY 2008; the total amount requested by these applicants is about $170 million.
- 26 projects have applied for loans from DEQ's Virginia Clean Water Revolving Loan Fund program to finance at least a portion of their local share of the project.
- A summary of deposits to the WQIF (for point source projects) and available funds are as follows:

Table 1: Chesapeake Bay NRT Projects - WQIF Appropriations		
Period	**WQIF Reserve (Million Dollars)**	**WQIF Funds for Point Source Projects (Million Dollars)**
FY 1998	$0.00	$10.00
FY 1999	$0.00	$37.10
FY 2000	$0.00	$25.24
FY 2001	$0.00	$10.30
Interest earned (through FY04)	NA	$10.47
FY 2005	$0.68	$13.25
Interest earned (FY05)	NA	$0.29
FY 2006	$3.91	$67.21
Interest earned (FY06)	$0.08	$1.57
FY 2007-08 appropriation	$0.09	$197.33
Interest earned (FY07)	$0.23	$8.46
TOTAL =	**$4.99**	**$381.22**
Expenditures to Date =		($121.64)
Balance on Signed Agreements =		($187.39)
Unobligated Funds =		**$72.19**

Estimated Nutrient Reductions from WQIF-Funded Projects

The current deadline for compliance with the point source nitrogen and phosphorus waste load allocations in the Chesapeake Bay watershed is January 1, 2011. The table below shows the pollution reductions that will be achieved as a result of the 17 projects for which WQIF cost-share grant agreements have already been signed. The table illustrates the pollution levels each facility delivered to the Bay and tidal rivers in 2006, compared to the maximum pollutant load they are allowed to deliver (WLA), and what they are projected to deliver in 2011. As can be seen from the "Totals," by 2011 these 17 projects will reduce the amount of nitrogen and phosphorus being delivered to the Bay and tidal rivers by more than 600,000 pounds and almost 150,000 pounds respectively.

Facility	Total Nitrogen Delivered Load (lbs/yr)			Total Phosphorus Delivered Load (lbs/yr)		
	2006	WLA	2011	2006	WLA	2011
Onancock STP	4,930	9,137	6,944	1,480	685	521
Lex-Rockbridge Reg. STP	6,639	16,446	9,356	9,300	4,568	8,576
RWSA-Moores Crk. STP	346,071	167,021	222,340	97,880	22,842	23,195
Warrenton STP*	51,734	18,578	18,578	4,140	2,284	2,284
Orange STP	21,710	22,293	8,174	3,950	2,741	1,005
Culpeper WWTP	59,414	33,440	24,300	7,440	4,112	3,984
Arlington Co. WPCF	645,010	365,467	365,292	6,890	21,928	7,306
ACSA-Fishersville STP	26,998	21,441	11,846	11,327	2,814	1,555
ACSA-Middle River STP	39,450	36,449	26,855	13,190	4,784	3,525
Dale Serv. Corp. #1 STP	25,780	42,029	34,719	750	2,193	2,083
Dale Serv. Corp. #8 STP	45,650	42,029	34,719	830	2,193	2,083
FWSA-Parkins Mill STP	98,390	45,074	26,594	26,634	2,111	2,767
Mt. Jackson STP	4,938	5,713	4,081	724	422	352
Purcellville STP	7,595	15,167	12,285	246	1,055	760
HRRSA-North River STP	89,949	111,492	71,826	8,193	14,633	9,427
Waynesboro STP	59,572	21,441	16,643	22,938	2,814	2,718
Woodstock STP*	13,695	16,324	16,324	5,244	1,407	1,407
Totals =	1,549,531	989,541	912,887	223,162	93,586	75,559

2. Other Wastewater Discharges and Sources

▲

Performance Measurement: Report semi-annually on: 1) the amount of loans and grants used to address TMDL implementation; and 2) the permitting and compliance actions taken in accordance with TMDL Implementation Plans.

- The Virginia Clean Water Revolving Loan Fund succeeded with its largest bond issuance earlier this year of $244 million. With these funds, plus additional funds from repayments, investment earnings, etc. a total of $325 million worth of projects were financed in FY 2007. Of this amount $279 million for 12 projects provides financial assistance for nutrient removal within the Chesapeake Bay watershed.

- In addition to the significant loan funds available for FY 08, the Virginia Clean Water Revolving Loan Fund completed loan closing procedures on 100 projects in FY 07 totaling $232,175,018. This includes 85 agricultural projects and 15 wastewater treatment plant or sewer system improvement projects. Approximately 84.5% ($196,143,344) of this funding was for projects improving the water quality of impaired streams both in and outside the Chesapeake Bay watershed. (see table below)

FY 07 Virginia Clean Water Revolving Loan Fund Project List				
Name	**Amount**	**Stream Impairment**	**Bay Impairment**	**Purpose**
Alleghany County	$3,408,175	$3,408,175	$0	Reduce SSO
City of Lynchburg	$7,000,000	$7,000,000	$0	Reduce CSO
City of Newport News	$3,123,000	$3,123,000	$0	Reduce SSO
City of Norfolk	$14,250,000	$14,250,000	$0	Reduce SSO
County of Arlington	$80,000,000	$40,000,000	$40,000,000	Reduce CSO/SSO, and nutrients to the bay
County of Shenandoah	$4,000,000	$2,000,000	$2,000,000	Reduce SSO, and nutrients to the Bay
Fluvanna County	$1,200,000	$0	$0	New system to eliminate existing residential septic tank/drainfield systems
Frederick/Winchester Service Authority	$39,000,000	$0	$19,500,000	Reduce nutrients to the Bay
Prince William County Service Authority	$45,000,000	$0	$33,750,000	Reduce nutrients to the Bay
Scott County P S A	$2,637,350	$2,637,350	$0	Eliminate Gate City WWTP discharge
Town of Kilmarnock	$1,358,400	$1,086,720	$271,680	Reduce metals to stream, and nutrients to the Bay
Town of Middletown	$5,161,526	$0	$2,580,763	Permit compliance, and nutrients to the Bay
Town of Mt. Jackson	$6,478,763	$4,049,227	$2,429,536	Reduce WWTP overflows, and nutrients to the Bay
Town of Woodstock	$4,561,156	$1,049,066	$3,512,090	Reduce WWTP overflows, and nutrients to the Bay
Western Virginia Water Authority	$9,993,612	$9,993,612	$0	Reduce SSO
Ag Loans (85)	$5,003,036	$3,502,125		Reduce nutrient and bacteria run-off
Total Value	**$232,175,018**	**$92,099,275**	**$104,044,069**	
To Impaired Non-Bay Waters		*$92,099,275*	*39.7%*	
To Chesapeake Bay Impairment		*$104,044,069*	*44.8%*	
Total Impaired Assistance		***$196,143,344***	***84.5%***	

Discharges from Boats

Performance Measurement: Report semi-annually on outreach efforts and No Discharge Zone designations being pursued.

A No-Discharge-Zone designation covering the Lynnhaven River, Broad Bay and Linkhorn Bay in Virginia Beach was approved by EPA, with final adoption by the State Water Control Board in March of 2007. Consideration is being given to pursuing expansion of this designation to other waters in the area.

Based upon the recommendations in completed TMDLs and the positive support from marina operators and local citizenry, DEQ is considering the No Discharge Zone

process for Broad and Jackson Creeks and Fishing Bay in the community of Deltaville in Middlesex County.

Discharges of toxic substances

Performance Measurement: Report semi-annually on TMDL clean-up plan development and implementation for waters impacted by toxic contamination.

Two Total Daily Maximum Loads (TMDLs) addressing Polychlorinated Biphenyl (PCB) contamination are actively under development for the tidal Potomac River and Roanoke River. The public comment period for the interstate Potomac River TMDL ended August 23, 2007, with the final TMDL report due by October 31, 2007. This one report will include TMDLs for 19 PCB impaired water in Virginia's tidal Potomac waters.

Monitoring results for the Roanoke PCB TMDL show high levels of PCBs in the river and some point source discharges. To better identify and characterize the sources, another round of monitoring is being planned so the completion schedule for the TMDL had been extended to later next year.

3. Failing on-site septic systems and illegal straight pipe (untreated) discharges

Performance Measurement: Report semi-annually on the amount of funds appropriated to local governments and property owners, with estimates of the number of failing systems or straight pipes that have been addressed.

During the 2007 legislative session $17 million was allocated by the General Assembly to be provided as grants to communities located outside the Chesapeake Bay watershed for construction of mandated water quality improvement facilities at publicly owned treatment works, correction of onsite sewage disposal problems, and other planning activities. These funds are now being administered by the Department of Housing and Community Development who is currently soliciting projects for this funding.

B. Agriculture and Forestry Category

1. Widespread adoption of cost-effective agricultural best management practices ("Priority Practices")

Objective: By 2013 fully implement priority agricultural best management practices in the Chesapeake Bay watershed in order to significantly advance the Commonwealth's nutrient and sediment pollution goals.

Priority practices are the agricultural best management practices (BMPs) found to be most effective in reducing water pollution. These five practices include: nutrient management, conservation tillage, cover crops, riparian buffers, and livestock stream exclusion. The five identified priority practices have received sixty percent ($7.5 million of $12.5 million) of the total cost share allocations from the WQIF committed to soil and water conservation districts for cost-sharing on BMPs in fiscal year 2008.

Nutrient management plans are developed with farmers by DCR employees or private sector nutrient management planners that are certified by DCR. Nutrient management plans are currently in place on 440,271 acres in Virginia's Chesapeake Bay watershed.

DCR is conducting a marketing campaign in the Shenandoah Valley designed to increase farmer participation in agricultural BMP cost-share programs. A new outreach brochure has been developed and distributed to promote the five priority practices. Possible new farmer recognition programs are under consideration that may require modification of state code.

The General Assembly provided $3.8 million in new WIQA funds in the 2007 budget bill. A total of $600,000 was allocated to water quality initiatives and $200,000 was set aside to satisfy the required reserve. The remaining $3 million was budgeted to generate approximately 165,000 acres of nutrient management plan writing and plan implementation per year for three years.

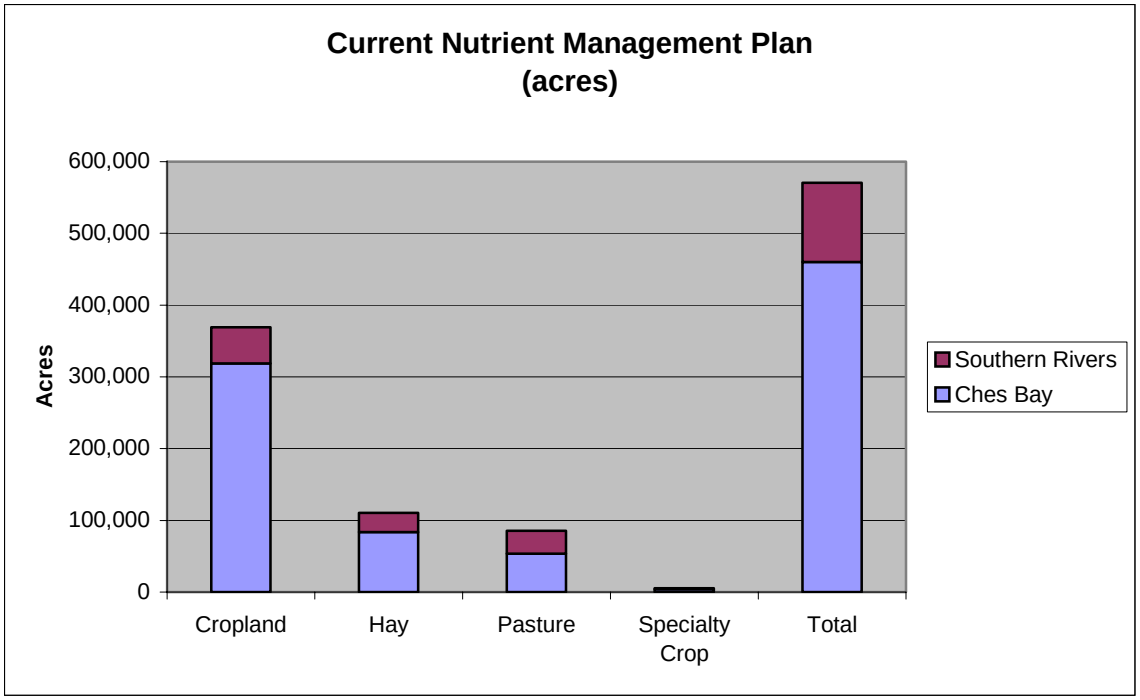
Performance Measurement: Pounds of nitrogen and phosphorus reduced through the implementation of priority practices as reported to the EPA Chesapeake Bay Program.

The following nitrogen and phosphorus reductions were reported to the Chesapeake Bay Program based on implementation of priority practices:

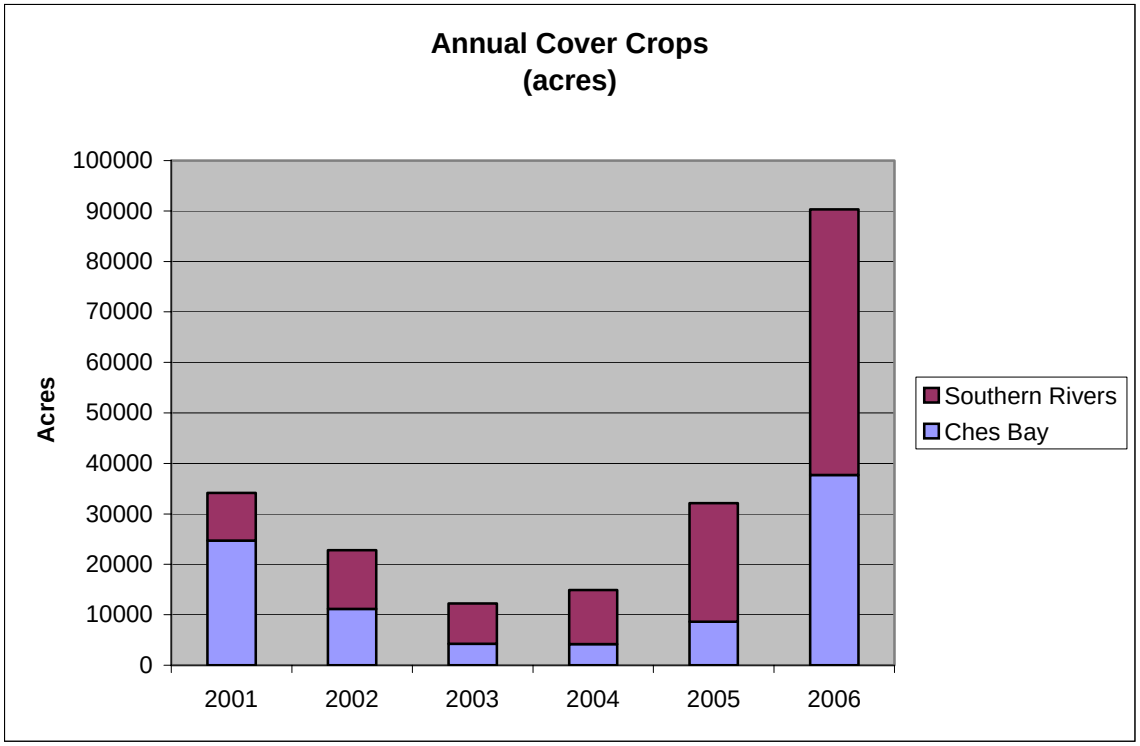
Estimated Chesapeake Bay Nutrient Reductions from Priority Practices, Calendar Year 2006 (Phase 4.3 Chesapeake Bay Model Analysis)

Practice	Total Nitrogen Pounds	Total Phosphorus Pounds
Nutrient Management	**648,917**	**65,987**
Cover Crops	**256,442**	**5,578**
Livestock Exclusion	**57,388**	**12,734**
Stream Buffers	**10,011**	**902**
Continuous No-Till	**89,132**	**24,303**

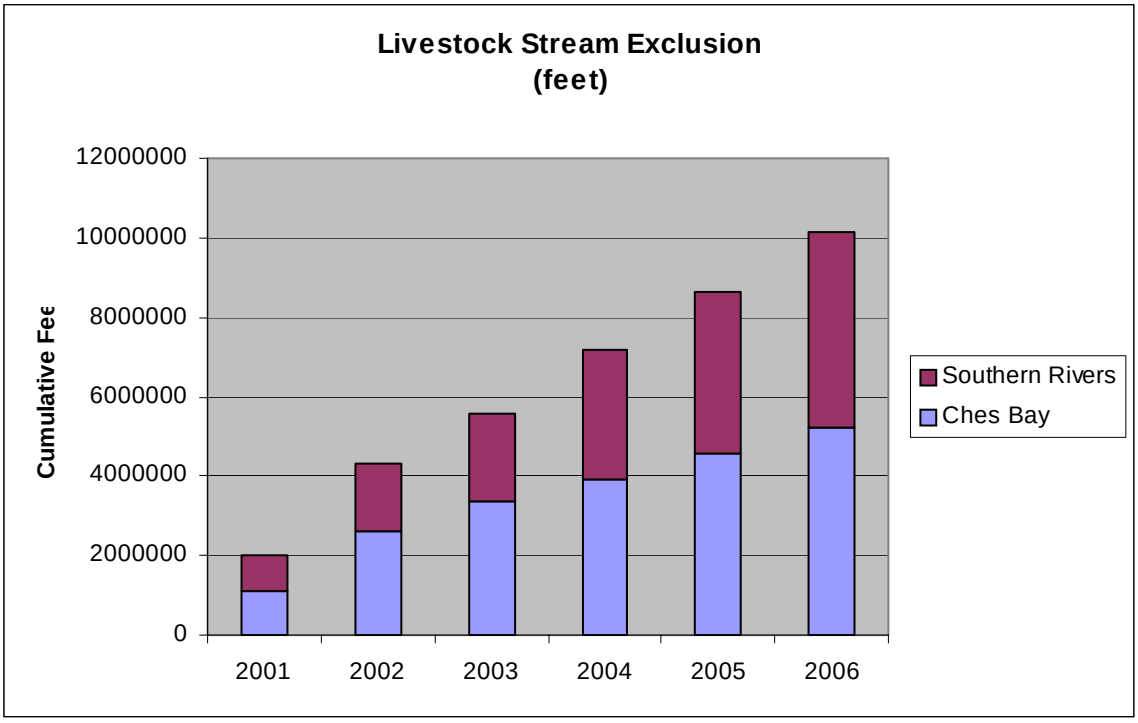
Summary graphs of the priority practice implementation levels are included below:



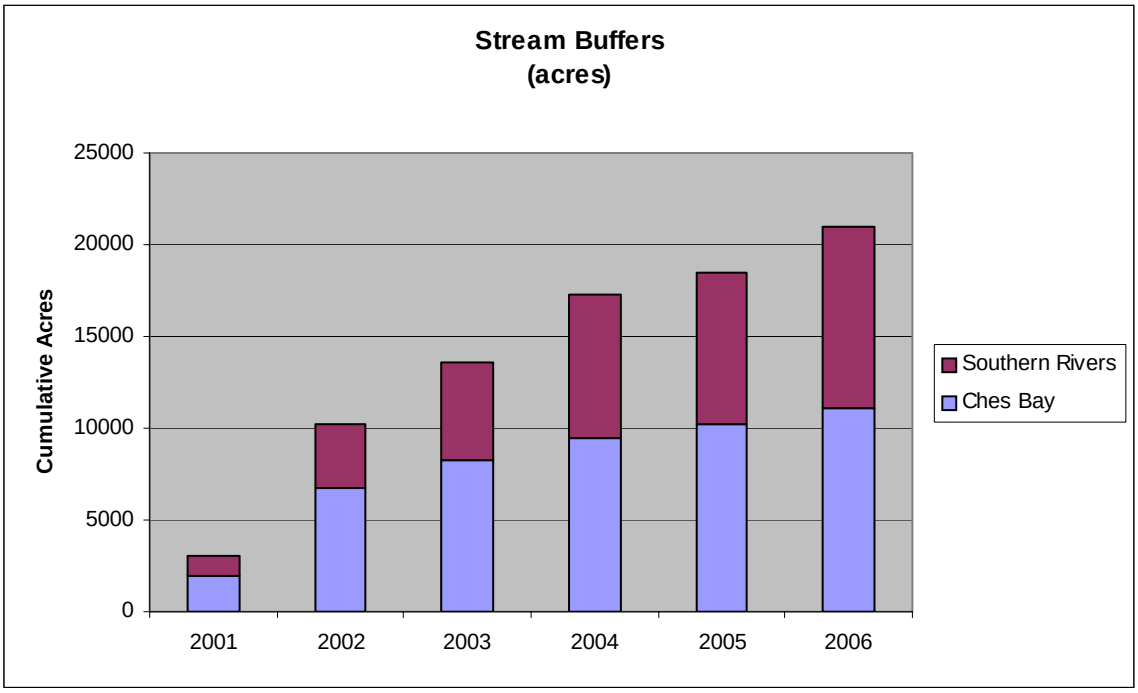
Tributary Strategies Based Bay Goal:	***1,009,595 Acres***
Progress: 460,095 Acres	***46%***



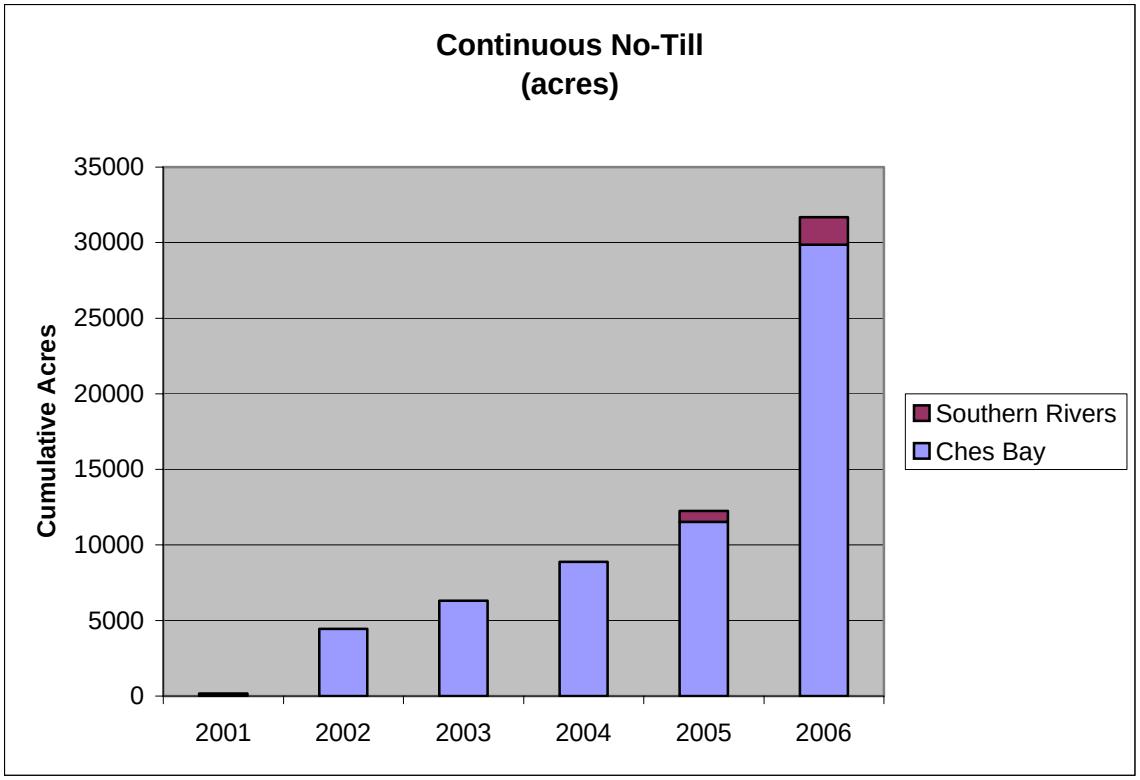
Tributary Strategies Based Bay Goal:	***413,232 Acres***
Progress: 37,645 Acres	***9%***



Tributary Strategies Based Bay Goal:	***54,754,946 Linear Feet***
Progress: 5,241,411 Linear Feet	***10%***



Tributary Strategies Based Bay Goal:	***312,523 Acres***
Progress: 11,110 Acres	***4%***



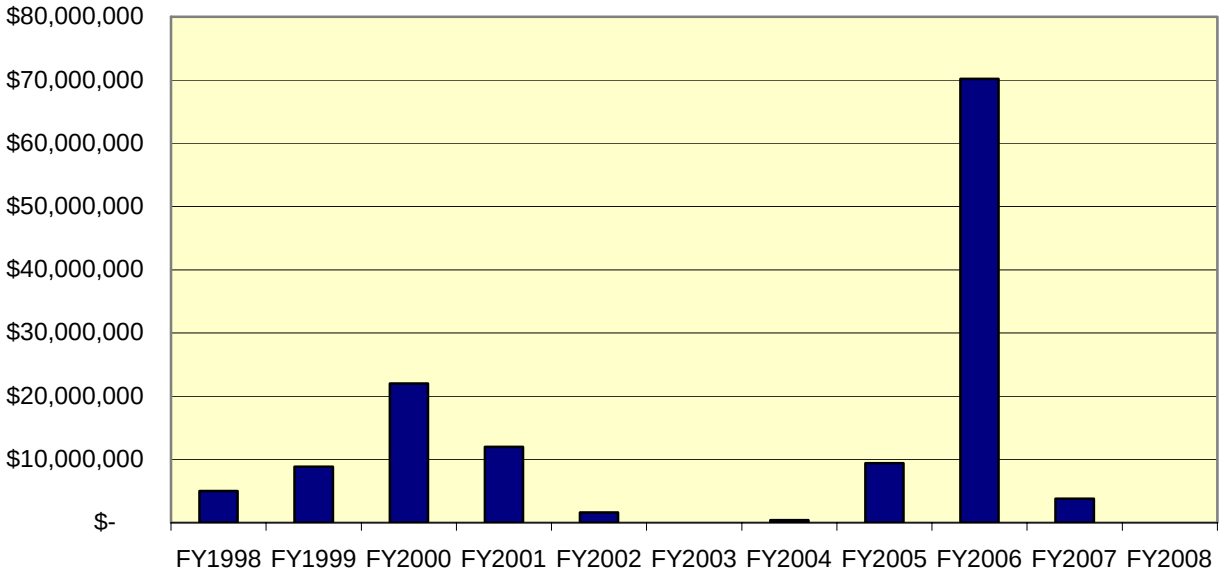
Tributary Strategies Based Bay Goal:	***41,686 Acres***
Progress: 29,854 Acres*	***72%***

* The Tributary Strategies Goals for Continuous No-till (a form of conservation tillage) were set as a placeholder since at the time of the strategies development this practice was not officially recognized by the Chesapeake Bay Program as a quantifiable nutrient and sediment reduction practice. Virginia is working toward having a much higher percentage of overall conservation tillage being implemented via Continuous No-till since this BMP has a 5-year lifespan and is considered to produce higher reductions than other forms of conservation tillage. Therefore, future progress reports will likely include a significantly increased Tributary Strategies Based Bay Goal for this practice and a proportionally significant reduction in the progress achieved to date.

The following graph depicts the total WQIF funding (for nonpoint source projects) from 1998 through 2007. Significant fluctuations in funding amounts have jeopardized farmer commitment and compromised Soil and Water Conservation District staff resources. There is currently no new funding allocated for 2008.

Virginia Department of Conservation and Recreation
Water Quality Improvement Fund (WQIF)

Fluctuations in Appropriations to WQIF for Nonpoint Source Reduction Practices
FY1998 to FY2008



§ 10.1-2129 of the Water Quality Improvement Act requires total funding be split 60/40 between Chesapeake Bay Watershed and the Southern Rivers Watersheds.

The Department of Conservation and Recreation estimates that it will cost the Commonwealth approximately $262 million to implement sufficient levels of the five priority practices to meet our Bay clean-up goals (an additional $140 million in costs will also be incurred by the farmers). A break-out of annual funding needs is provided below.

FISCAL YEAR	FUNDING NEEDS*
FY2006	$ 2,000,000
FY2007	$ 3,000,000
FY2008	$ 4,000,000
FY2009	$ 32,000,000
FY2010	$ 45,000,000
FY2011	$ 56,000,000
FY2012	$ 60,000,000
FY2013	$ 60,000,000
TOTAL	$ 262,000,000

*Funding Needs column includes past allocations (FY2006 to FY2008) and 5% technical assistance for soil and water conservation districts and DCR.

2. Implement nutrient management on lands receiving poultry litter

Objective: Revise current poultry litter management program to assure that all land application of poultry litter will be done in accordance with prescribed nutrient management planning.

Two efforts are underway to improve the management of poultry litter on farms receiving poultry litter transferred from poultry growers' farms.

The first effort involves the development of a transport incentive program to relocate litter from concentrated poultry production areas to regions where the nutrients in litter can be better utilized for crop and pasture production. Two stakeholder meetings have been held to develop specifications for the transport program. Proposed incentive payments are being developed on a tiered approach, with the highest payments awarded for litter transported outside of the Chesapeake Bay watershed. All litter that is transported with the assistance of state funds must be applied in accordance with a nutrient management plan. As directed by Virginia's Poultry Waste Management Act, the program is designed to be an equal matching grant program between the Commonwealth and commercial poultry processors. Negotiations have yielded an agreement for the Commonwealth and the industry to each provide $100,000 per year for three years. Based on current progress of this project, a target date of October 1, 2007 has been established to initiate the litter transport program. At approximately $10 per ton of litter, the agreed upon funding will relocate approximately 20,000 tons of litter from concentrated poultry production areas. This amount represents approximately 11.8% of the total litter being generated in these areas. The incentive program will likely need to be expanded in the future to move sufficient amounts of litter to adequately address water quality problems within concentrated poultry growing areas.

The second effort involves consideration of possible legislative or regulatory changes to the poultry waste management law or regulations. A stakeholder committee was formed by the Secretary of Natural Resources to evaluate possible mechanisms for assuring that all end-users of poultry litter implement appropriate nutrient management practices. The committee met three times and an interim report has been prepared and submitted to the Secretaries of Natural Resources and Agriculture and Forestry. The interim report recommends that existing regulations be revised to include additional safeguards for the off-site application of poultry litter.

3. Significantly reduce the phosphorus content of poultry, swine and dairy manures through aggressive diet and feed management

Objective: Reduce the phosphorus content in poultry litter and swine manure by 30% through wide-spread adoption of feed supplements throughout Virginia's poultry and swine industries and achieve a 20% phosphorus content reduction in dairy manure through improved diet and feed management.

The implementation of this objective is in progress. Numerous meetings have been held with poultry integrators and discussions have focused on establishing the approximate level of current phosphorus in the litter of each integrator. A format for the Memorandum of Agreements, to be signed by each company, has been drafted establishing a goal of a 30% reduction in phosphorus in litter for each integrator as compared to baseline data. A target timeframe for signature of the agreements has been set for fall of 2007.

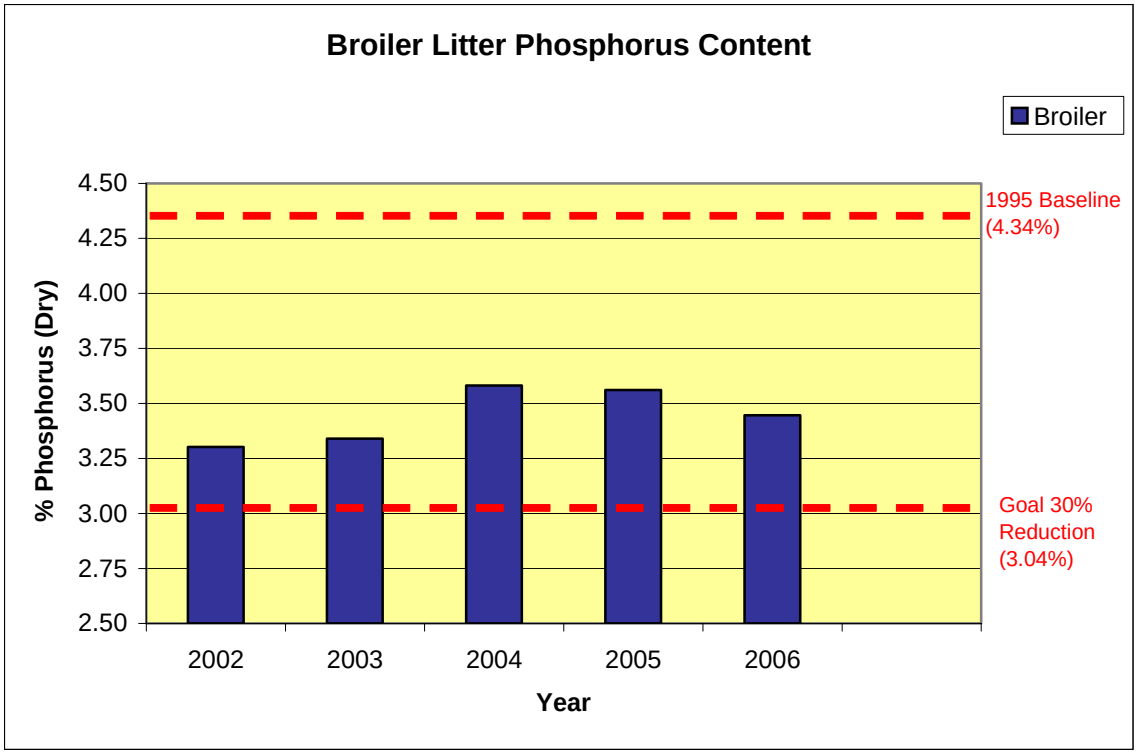
To reduce phosphorus in dairy manure, DCR has funded a "Dairy Precision Feeding" project utilizing $400,000 of WQIF funds to create a pilot incentive program for dairy producers to reduce phosphorus in dairy feed. These state funds leveraged an additional $880,000 in federal grant funds. Farmers that meet certain performance targets for phosphorus in feeds are eligible to receive incentive payments ranging from $3 to $12 per cow each year. Participants also benefit from free feed analysis provided through the project. One year into this project, 183 farms are enrolled in the project, representing 25% of the Virginia dairy farms and 30% of the total cows, with 145 farms in the Chesapeake Bay Watershed. An initial evaluation of 47 herds that enrolled as part of the first group, (sign up of herds is still continuing through the project), revealed that 76% of herds are overfeeding phosphorus by more that 15%. The degree of over feeding has declined significantly as a result of the project.

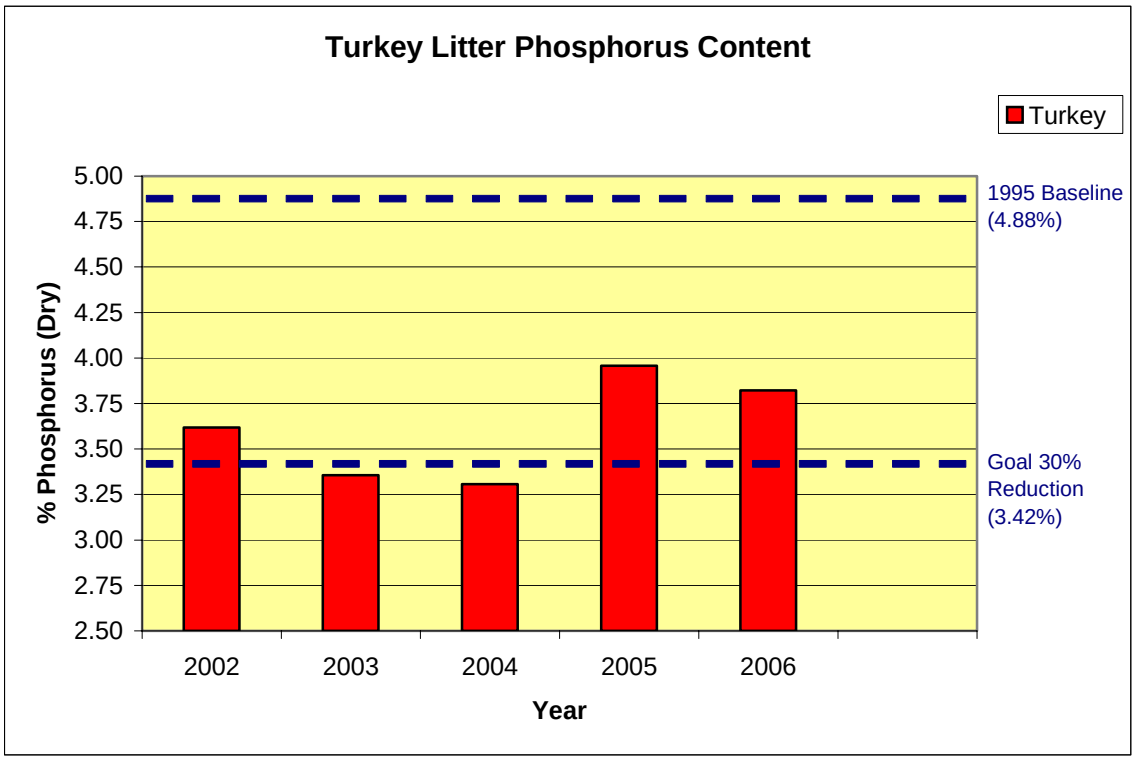
Performance Measurement:

1) *Percentage reduction in phosphorus content of sampled poultry litter and swine manure; and*
2) *Percentage of dairy animals in the Chesapeake Bay in dairy operations utilizing diet and feed modification technology.*

Dairy Precision Feeding: With one year of results tabulated, based on the first 47 herds signed up for the project, dietary phosphorus has been reduced by 5.5% or 5 grams of phosphorus per cow per day as compared to levels at the beginning of the project. By applying this first year's results to just the 30,000 cows in this project, the reduction would be 279,735 pounds of P_2O_5 per year. Despite the initial positive results of this innovative incentive program, inexpensive byproduct feed supplements (generated from expanded ethanol production in the region) could detract from future achievements.

Phosphorus content of Virginia poultry (broilers) and turkey litter is presented in the tables below. Published data from 1995 is being used as the benchmark level for assessing progress toward the 30% reduction goal.


Broiler Litter Phosphorus Content
Broiler
% Phosphorus (Dry)
4.50
4.25
4.00
3.75
3.50
3.25
3.00
2.75
2.50
1995 Baseline
(4.34%)
Goal 30%
Reduction
(3.04%)
2002
2003
2004
2005
2006
Year


Turkey Litter Phosphorus Content
Turkey
% Phosphorus (Dry)
5.00
4.75
4.50
4.25
4.00
3.75
3.50
3.25
3.00
2.75
2.50
1995 Baseline
(4.88%)
Goal 30%
Reduction
(3.42%)
2002
2003
2004
2005
2006
Year

1. Accelerate land conservation efforts

Objective: The Commonwealth, in conjunction with private and public partners, will permanently preserve for conservation purposes 400,000 acres of land statewide by 2010.

Land conservation efforts in Virginia continued to accelerate over the past year. In the last seven years (FY2001-2007) an average of 61,556 acres per year statewide have been protected in Virginia, counting the combined efforts of both private and public organizations and agencies. In FY2007, 93,526 acres were protected statewide, due largely to donations made by landowners seeking to take advantage of generous tax incentives.

To ensure that the rate of acceleration remains strong, state agencies have continued efforts to increase the amount of permanently protected land in Virginia. These efforts include the following:

- In June 2007, the Virginia Land Conservation Foundation (VLCF) awarded more than $6 million in grant funds for acquisition or easement projects. With matching funds, this $6 million was leveraged into $24.9 million, and 11,539 acres will be conserved.

- Virginia Department of Agriculture and Consumer Services' Office of Farmland Preservation received $305,000 for FY 2006-2008, allowing it to hire its first staff person in January 2007. The office also received $4.25 million in state matching funds for local Purchase of Development Rights (PDR) programs as part of the FY 2007-2008 budget amendment.

- The Commonwealth has been successful in obtaining funding through the Forest Legacy Program for conservation easements on 980 acres in the New River Valley and for property acquisition and easements along the Nottoway River. The Virginia Department of Forestry has hired a new Assistant Director to focus on increasing forest land conservation donations and easements, and will soon be adding three more positions to support that work.

- Funding was provided in the 2007 General Assembly session for additional historic easement specialists at the Department of Historic Resources.

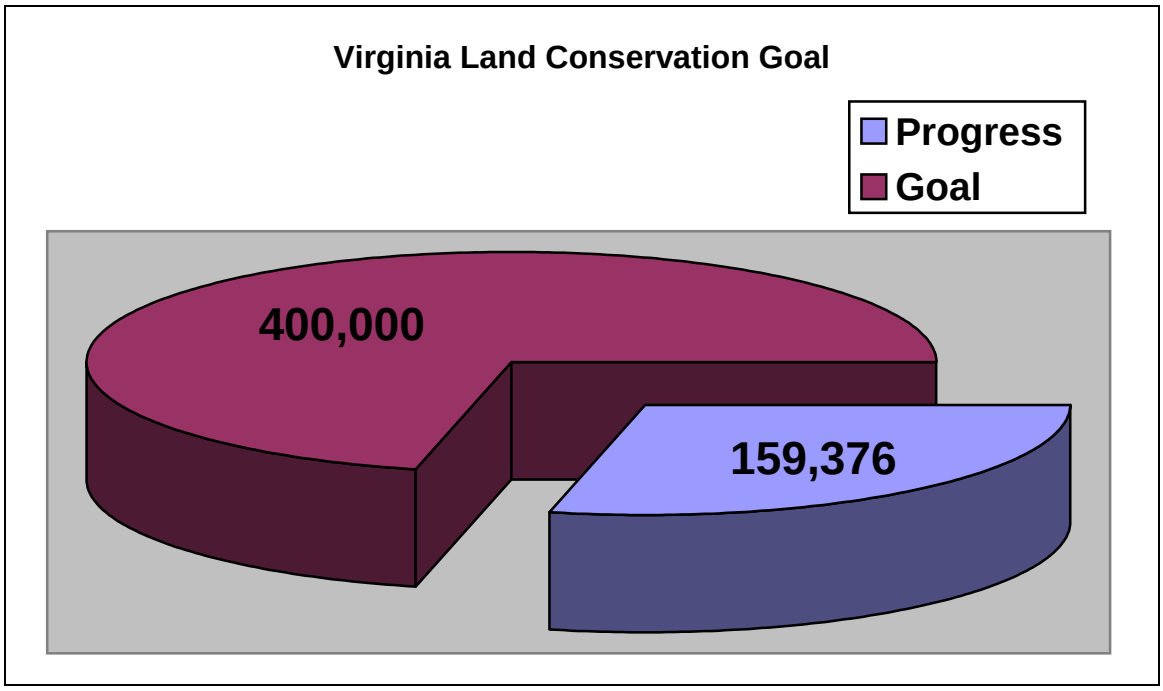
- The Virginia Outdoors Foundation also received increased funding to make much-needed expansions to its easement and stewardship staff.

- The Department of Conservation and Recreation has continued to acquire land for new State Parks and for Natural Area Preserves, as well as expansions to existing properties.

While the progress has been significant, additional resources and capacity are needed to meet the stated objectives of preserving 20% of the Chesapeake Bay watershed and Governor Kaine's goal of protecting 400,000 additional acres in Virginia by 2010. Funding for VLCF and state PDR matching funds is insufficient to meet those goals, and additional state resources for these programs would leverage federal, private and local funds for permanent land conservation.

Performance Measurement: Number of acres conserved by 2010 as reported monthly and annually by the Department of Conservation and Recreation within the Chesapeake Bay and Southern Rivers watersheds.

As of June 30, 2007, the Commonwealth has permanently preserved 159,376 acres towards Governor Kaine's land conservation goal.



Current Annual Protection Trends

Year	Statewide (acres)
2001	54,887.63
2002	48,858.16
2003	51,569.21
2004	56,514.81
2005	59,685.71
2006	65,849.38
2007	93,526.44
Total	430,891.34
Annual Average	61,555.91

C. Developed and Developing Lands Category

Progress on two of the five policy areas under the Developed and Developing Lands Category has been good, with measurable gains made towards full implementation and compliance of erosion and sediment control programs statewide and full compliance with septic maintenance and pump-out and BMP monitoring and inspection requirements. Reviews of local erosion and sediment control programs and Chesapeake Bay Preservation Act implementation have progressed, and will continue until these two areas have been fully addressed. Progress in these two areas has been steady due, in part, to the regulatory nature of these two areas and the availability of state staff to undertake these reviews.

Progress on revising local codes and ordinances so as to not conflict with water quality is ongoing, with two localities having initiated a review of their codes to maximize water quality protection. DCR is continuing to develop standards for review the of 84 Tidewater localities. By the end of 2008, it is expected that DCR will begin reviewing the 84 Tidewater localities for compliance in this area.

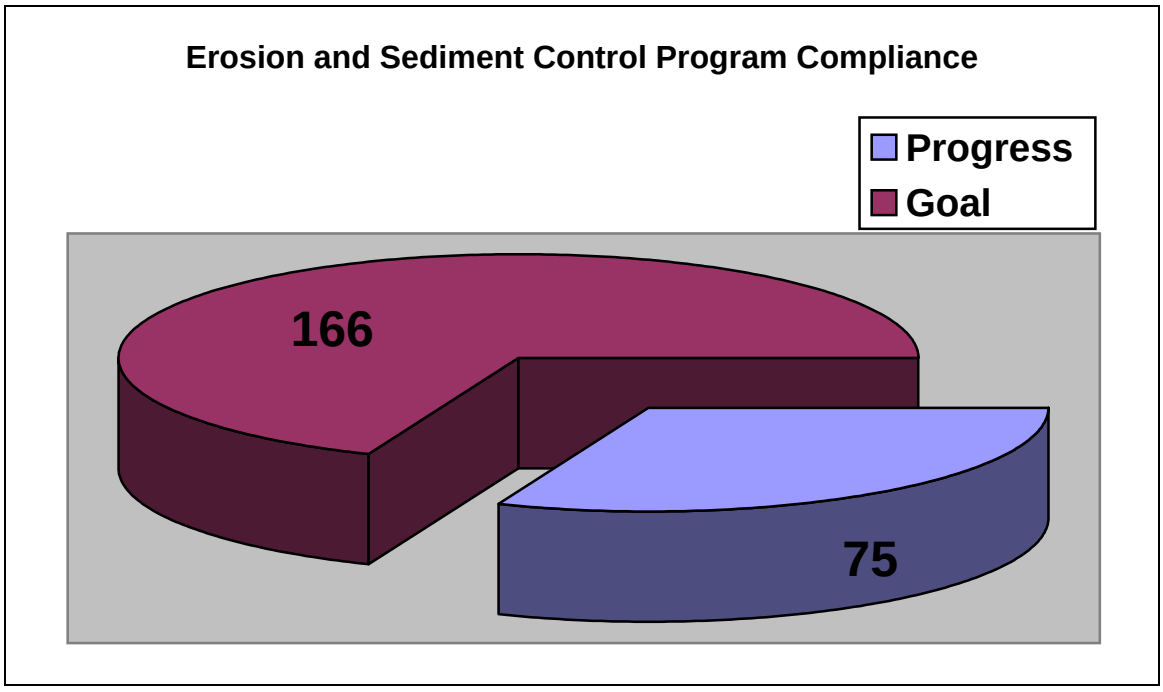
Progress on the remaining area – establishing jurisdictional nutrient pollution caps in the Bay watershed – has been limited, due in large part, to the unavailability of jurisdiction-specific land use data from the Chesapeake Bay Program and the inability to secure grant funds (National Fish & Wildlife Foundation Small Watershed grant program) for a pilot project to be undertaken in Richmond County.

1. Measurable improvement toward full implementation and compliance of erosion and sediment control programs statewide

Objective: By the end of 2010, 90% of the 166 local erosion and sediment programs will be consistent with the requirements of the Virginia Erosion and Sediment Control Law.

Performance Measurement: Number of local program reviews completed annually and percentage or programs reviewed in compliance with state standards.

Current status: The Virginia Soil and Water Conservation Board (VSWCB) adopted revised local program review criteria effective July 1, 2004. Utilizing the revised review process, DCR staff has completed 86 local program reviews as of June 30, 2007. The remaining 79 local programs are scheduled for review in FY08 and FY09. As of July 2007, the VSWCB has recognized 57 local programs as being consistent with law and regulations. Programs found to be not consistent with the law and regulations are required to develop and implement corrective action agreements. These programs are then considered as being conditionally consistent with corrective action pending.



2. Establish jurisdictional nutrient pollution caps in the Chesapeake Bay watershed

Objective: Establish jurisdictional nutrient loading caps utilizing a collaborative process, involving the U.S. EPA's multi-jurisdictional Chesapeake Bay Program, local governments with the Chesapeake Bay watershed and other public and private agencies and institutions.

Performance Measurement: Performance measures will be developed as this process moves forward.

Current status:

1. DCR is still awaiting land use data from the Bay Program through the Phase 5 computer model. Once final data has been received, the data will be reviewed with the localities in cooperation with the Planning District Commissions.

2. Grant award decisions from the National Fish and Wildlife Foundation Small Watershed Grants will not be made until fall 2007. Once grant funds have been secured, the pilot study evaluating the relationship between pollutant loads and land use in the selected pilot jurisdiction can commence. Richmond County has been selected as the pilot area and demonstrated significant interest in the program

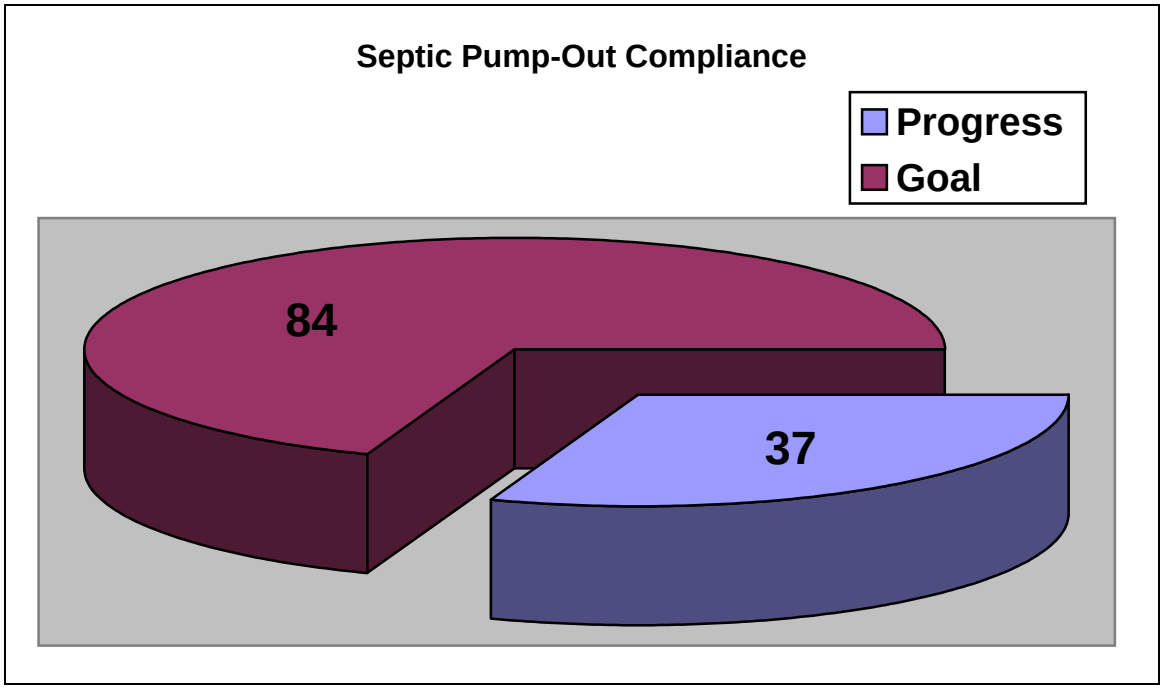
3. Fully achieve local government compliance with septic maintenance and pump-out requirements and BMP monitoring and inspection requirements of the Chesapeake Bay Preservation Act

Objective: Achieve 100% Chesapeake Bay Preservation Act compliance by Tidewater localities with septic pump-out requirements by 2010 in order to reduce impairments caused by high levels of fecal coliform bacteria.

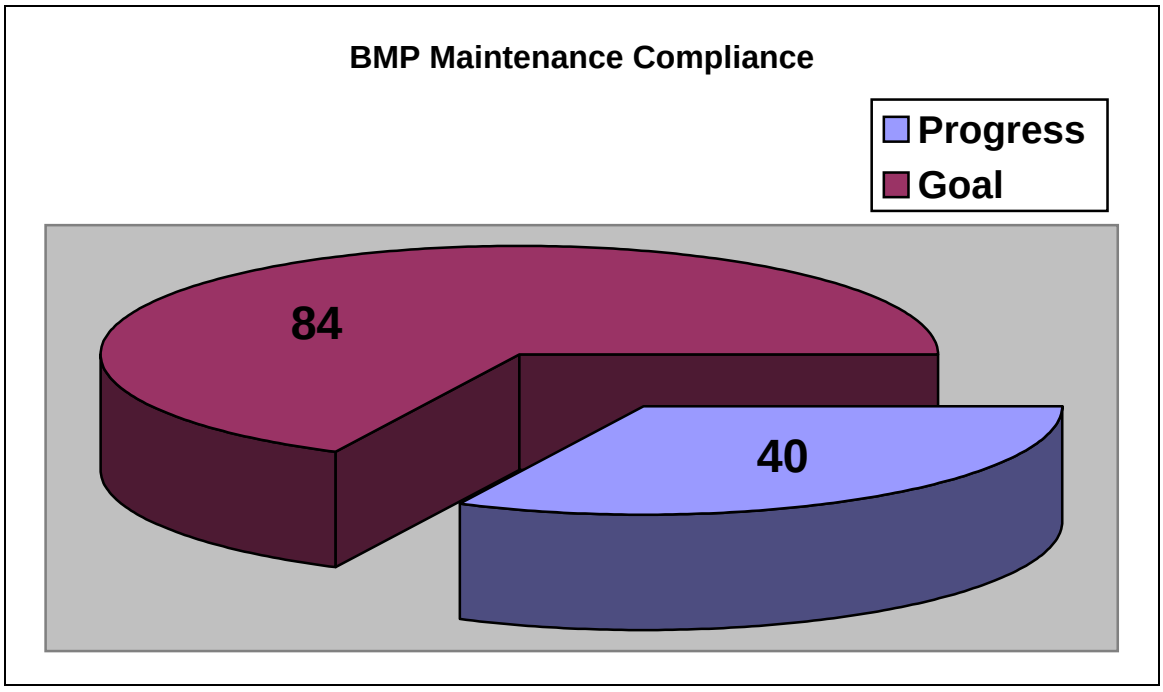
Performance Measurement:

1) *Number of localities in compliance with local septic pump-out programs;*
2) *Number of systems pumped with estimated resulting nutrient reductions; and*
3) *Numbers of BMPs installed along with pollutants removed and acres treated.*

Current status: As of September 1, 2007, 37 of the 84 Tidewater localities have been found (or will be found) by the Chesapeake Bay Local Assistant Board, to have met the septic tank pump-out requirements.



As of September 1, 2007, 40 of the 84 Tidewater localities have been found (or will be found) by the Chesapeake Bay Local Assistant Board, to have met the BMP maintenance requirement.



Note: Accurate pollutant reduction estimates for BMPs installed and septic systems pump outs are not available at this time. These estimates will be included in future updates.

Potential 2008 Legislation

There appears to be legislative interest to address the significant issue of financing septic system replacements and upgrades throughout the Commonwealth.

Proposed legislation will likely allow for 'betterments loans', a type of creative financing tool that certain other states are using where the state has a compelling interest in mitigating environmental and/or public health risks. For example, since failing home septic systems represent a source of nutrient pollution loading to Virginia waters, betterments financing could be used to help homeowners faced with the substantial expense of having to replace failing septic systems. Such a mechanism has a dual benefit of both providing homeowners with affordable financing options and furthering the Commonwealth's goal of cleaning up polluted waters.

As envisioned, the betterments statute would likely be structured to address the following key components:

- Provide state agencies (i.e. Department of Health, Department of Environmental Quality, and Department of Conservation and Recreation) and local governments the authority to qualify a private party to receive a betterments loan for a specific purpose;

- Ensure that there is no 'debt' to the Commonwealth, state agencies, or local governments;

- Allow credit providers to compete in the marketplace, thereby allowing borrowers multiple sources of financing options; and

- Avoid unfunded mandates on local governments by allowing localities to receive minor compensation for helping to facilitate the financing.

4. Revise local codes and ordinances so as not to conflict with water quality protection measures

Objective: Incorporate specific water quality protection measures into local land development codes, ordinances, and processes.

Performance Measurement:

1) Number of local governments with compliant programs; and
2) *Levels of impervious cover for new commercial and residential development.*

Current status: At least two localities in the Bay Act area have initiated a review of development codes to maximize water quality protection. DCR review of the remaining programs will commence when they near the end of all local government compliance reviews, currently projected for early 2008.

5. Implement Revised Stormwater Management Program

Objective: Complete the revision of Virginia's stormwater management regulations, implement the regulations statewide and maximize government adoption of the program.

Performance Measurement: Upon completion of the regulatory revision process, progress will be tracked semi-annually through future revisions to the Clean-Up Plan.

Current status: The Virginia Soil and Water Conservation Board (VSWCB), through DCR staff, has developed and undertaken two regulatory actions to amend and modify the Virginia Stormwater Management Program (VSMP) Permit Regulations. One regulatory action addresses 2 separate parts of the regulations: Part II - Stormwater Management Program Technical Criteria and Part III - Local Programs. The second regulatory action addresses Part XIII: Fees.

The VSWCB and DCR established a Technical Advisory Committee (TAC) to provide public participation in the development, modification and amendment of Parts II, III, and XIII of the regulations. The TAC has been very active and has developed draft regulations. The TAC has proposed enhancements to the water quantity and quality criteria for proposed projects, new procedures for localities and DCR to follow when implementing a stormwater management program and modifications to the fees to cover the costs associated with the program. The draft regulations will be presented to the VSWCB for review and possible action at the September meeting.

D. Air Category

Performance Measurement: The DEQ will report annually on the implementation and progress of the programs related to air deposition.

Minor updates for Nitrogen Oxides and Sulfur Dioxides for 2002 and 2018 have been made to the table that was included in the January 2007 Clean-Up Plan and are included in the revised table below. Projections for 2009 remain unchanged.

Progress was made on the Virginia mercury deposition study. In February 2007, a contract was awarded to ICF International for work relating to the mercury emissions data analysis and mercury deposition modeling portions of the study. A second contract was awarded to the Center for Environmental Studies at the Virginia Commonwealth University (VCU) to assess the human health risks from consuming methylmercury contaminated fish. The study is to be completed by October 2008. In addition, DEQ is sponsoring a conference on November 28 – 29, 2007, in Newport News, Virginia, to present interim results from the ongoing study and to raise awareness of mercury emissions, prevention and control techniques, transport and deposition, and health effects.

TABLE 2: Air Deposition Pollutant Base & Future Predicted Emissions

	2002 (Tons/Year)		2009 (Tons/Year)		2009 (Tons/Year)		2018 (Tons/Year)		2018 (Tons/Year)	
Source Categories	NO_X	SO_2	NO_X	SO_2	Diff. NO_X	Diff. SO_2	NO_X	SO_2	Diff. NO_X	Diff. SO_2
Electric Utilities [1]	85,081	233,691	62,547	193,112	***-22,534***	***-40,578***	66,074	114,255	***-19,006***	***-119,436***
Large Industries	75,803	137,448	67,263	135,612	-8,540	-1,836	70,343	140,995	-5,461	3,547
Other Fuel Consumption	15,642	5,507	15,966	5,258	324	-250	17,852	5,369	2,209	-138
Chemical Manufacturing	8,062	2,126	7,790	1,996	-272	-131	9,211	2,291	1,149	165
Metals Processing	937	5,251	827	4,813	-110	-438	1,017	5,948	80	697
Petroleum Industries	182	170	197	187	15	17	228	217	46	47
Other Ind. Processes	9,279	17,702	9,425	18,871	146	1,169	10,836	21,294	1,556	3,591
Solvent Utilization	0	2	0	3	0	0	0	3	0	1
Storage & Transport	11	0	12	0	1	0	15	0	4	0
Waste Disposal	1,864	1,581	2,174	1,805	310	223	2,595	2,171	730	590
Miscellaneous Area	279	72	458	122	179	50	579	156	300	84
Highway Vehicles [2]	219,835	8,196	132,699	1,067	***-87,136***	***-7,129***	57,192	949	***-162,643***	***-7,247***
Nonroad Vehicles [3]	63,219	8,663	54,993	1,707	***-8,226***	***-6,955***	40,393	507	***-22,826***	***-8,156***
Totals:	480,196	420,410	354,531	364,552	***-125,845***	***-55,858***	276,335	294,155	***-203,862***	***-126,254***

[1] Electric utility emission reductions are the combined result of the State NOX Budget and Clean Air Interstate Rule programs.

[2] Highway vehicle emission reductions are the result of Federal Motor Vehicle emissions and fuel standards.

[3] Nonroad vehicle/equipment emission reductions are the result of Federal Nonroad engine and fuel standards.

E. Significantly accelerate removal of waters from the impaired waters list

[Note: This section is a combined report on progress from two clean-up strategy components from the original February, 2007 Clean-Up Plan: 1) "Significantly accelerate removal of waters in the Southern Rivers watersheds from the impaired waters list"; this component is contained in the Agriculture and Forestry Category of the Clean-Up Plan; and 2) "TMDL Strategy," which is contained in Appendix A of the plan.]

Objective: Improve the quality of waters located outside of the Chesapeake Bay watershed ("Southern Rivers" region) and within the Bay watershed through development and implementation of individual clean-up plans.

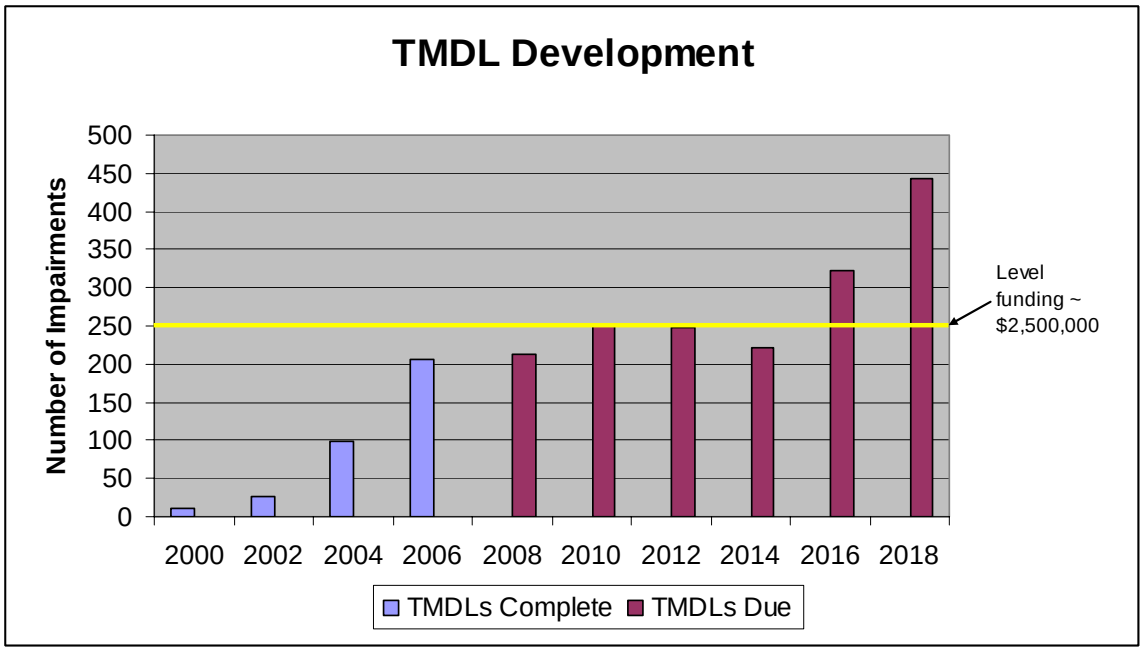
Performance Measurement:

1) Number of waterbodies removed from the list of impaired waters: and
2) Measurable improvements in waters not removed from the impaired waters list.

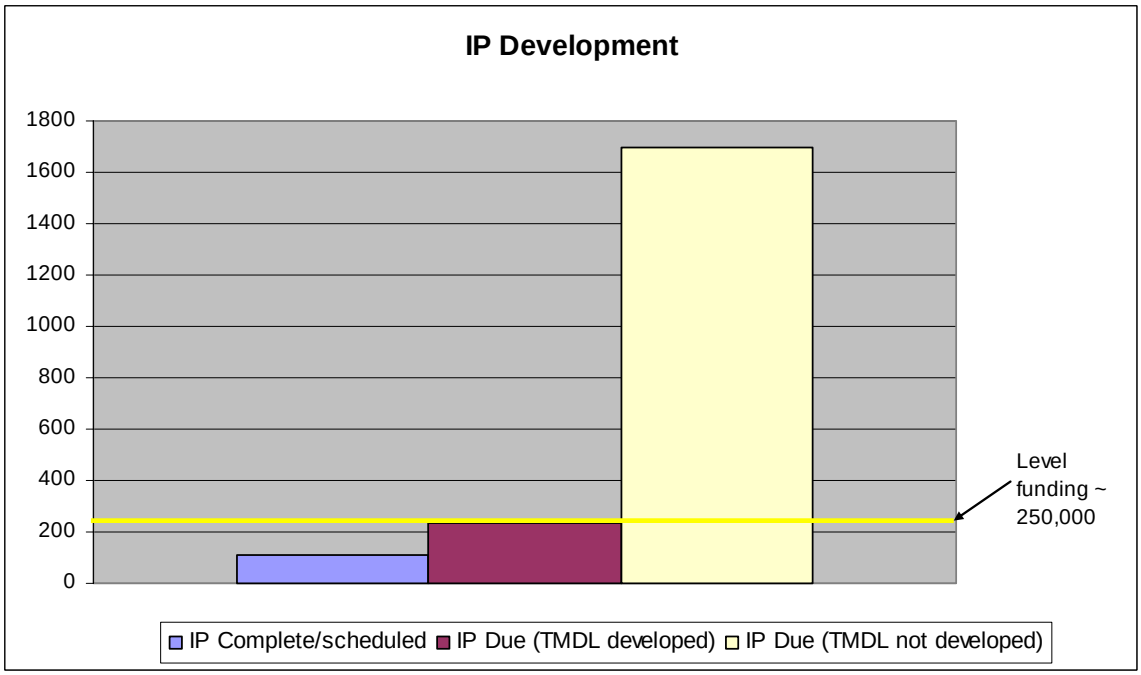
Following the completion and approval of the Total Maximum Daily Load (TMDL) for a pollutant for a particular waterbody, a TMDL Implementation Plan (IP) is required by the Virginia Water Quality Monitoring, Information and Restoration Act of 1997. While TMDL development is pollutant specific, IPs are designed to address multiple water quality problems within a watershed at one time. IPs describe the actions (*i.e.*, best management practices) required to achieve the pollution allocations contained in the TMDL.

Through August 2007, Virginia has submitted to EPA TMDLs covering 39 consent decree and 24 non-consent decree impairments to meet the May 1, 2008 deadline.

Assuming level annual funding of approximately $2.5 million, TMDL development can be completed for an additional 470 impairments and meet consent decree requirements through May 1, 2010. For the years beyond 2010, increased funding will be necessary to meet the accelerated TMDL development schedule (see figure below).

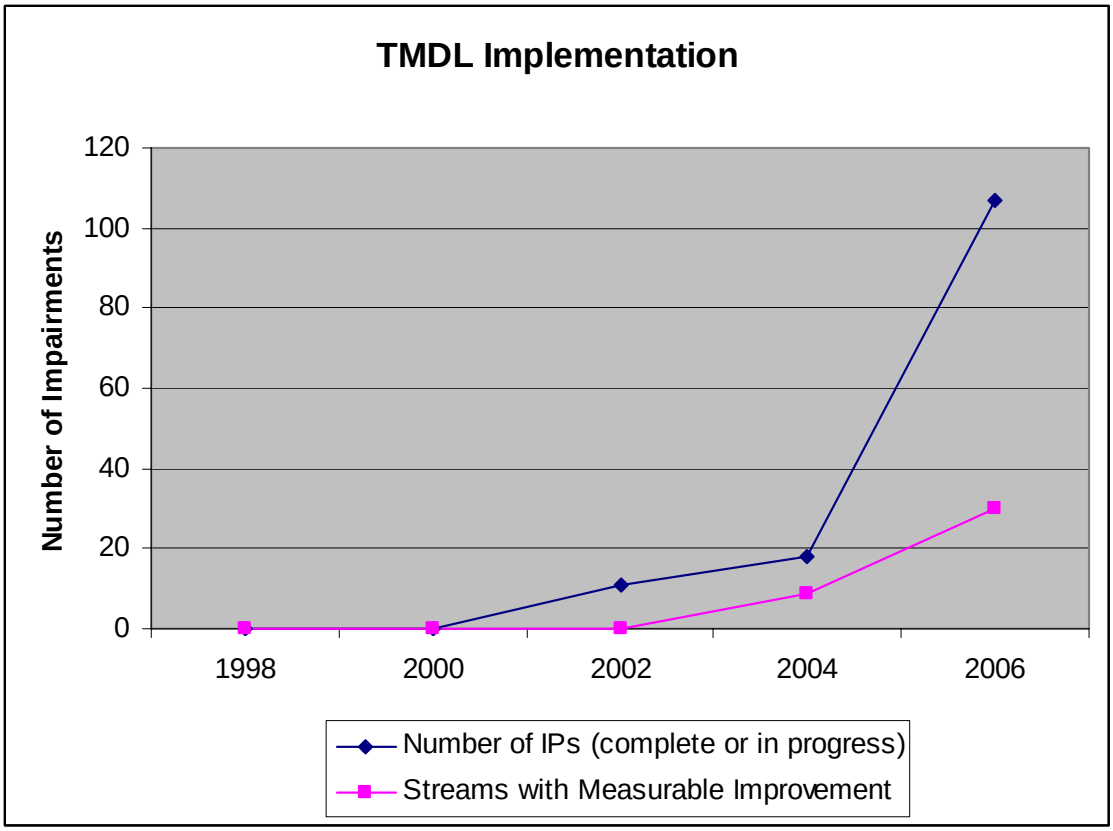


Development of TMDL Implementation Plans [IPs] has not progressed nearly as quickly as development of the TMDLs, largely due to lack of funding. (See figure below) No additional IPs have been completed during the first half of 2007 although development has been initiated for an additional 16 impairments.



Several of Virginia's streams are showing measurable improvements following TMDL implementation activities in the watersheds. However, to date, extensive outreach efforts and technical assistance have failed to garner full voluntary

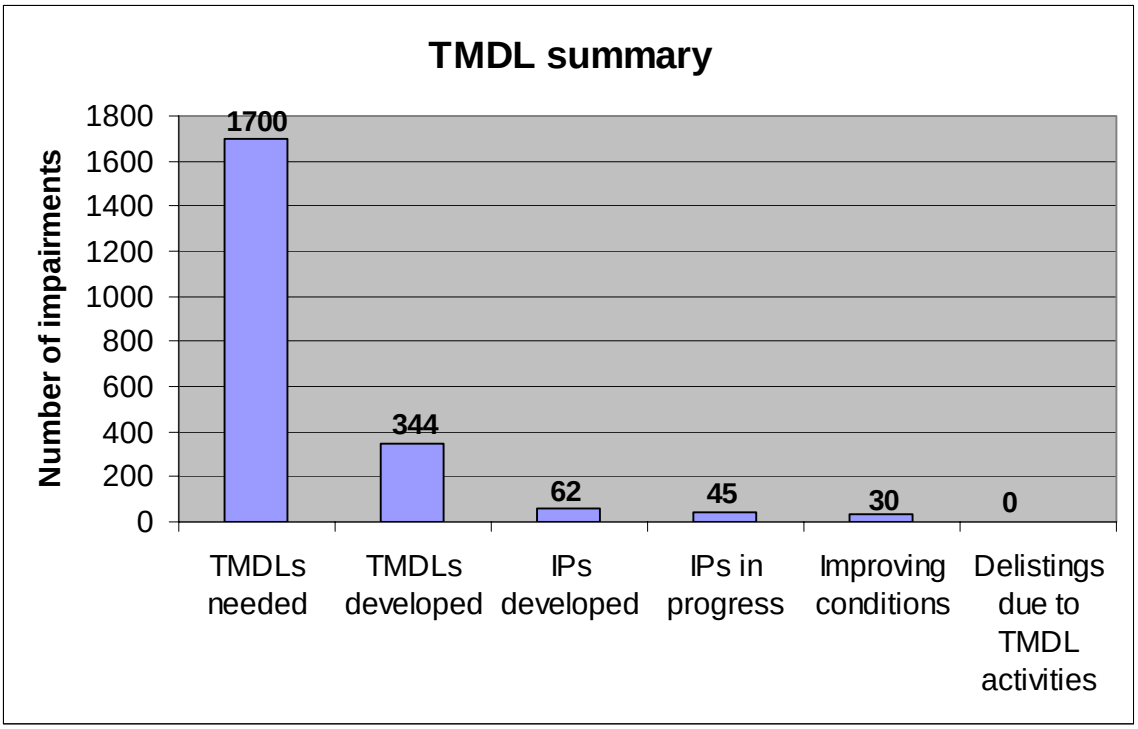
participation in two of the most critical conservation practices – stream fencing (livestock exclusion) and repairing/replacing failing septic systems and illegal straight pipes. While water quality improvements are observable, some level of impairment still remains in each of these watersheds.



Prior to July 2006, the only targeted funding available for TMDL implementation in Virginia was from EPA's 319 program. This funding was used for agricultural, urban, and residential Best Management Practices. Examples include, failing on-site septic systems, technical assistance (provided through Soil and Water Conservation Districts and local Health Departments) and outreach/technology transfer. Approximately $1.3 million and $1.9 million respectively were spent on TMDL implementation in 2005 and 2006 respectively. Starting in July 2006, DCR began targeting a portion of the Water Quality Improvement Fund (WQIF) to eight soil and water conservation districts for TMDL implementation. In addition to targeting WQIF agricultural cost-share funding, an allocation of general funds was made to support technical assistance staff in these districts. To date, in addition to 319 funding, approximately $4,822,500 in targeted TMDL implementation and technical assistance funding has been contracted to these districts.

The figure below summarizes the status in all steps of the TMDL process as of August 1, 2007. The figure highlights the large number of TMDLs required due to the number of impaired waters throughout Virginia. While TMDL development progress continues, additional impairments are added with each water quality assessment cycle.

With the pace of identification of new impairments greatly outpacing the rate of TMDL development and implementation, the figure clearly illustrates the challenge of transitioning from the TMDL "development" phase into the "implementation" phase.



Performance Measurement

1) Number of water bodies removed from the list of impaired waters; and
2) Measurable improvements in waters not removed from the list of impaired waters.

There are several projects that are showing marked improvement in water quality, but for most of the TMDL implementation projects it is too early in the process to assess the degree of water quality improvement. The Willis River, however, may be an exception to that rule. This project has shown remarkable success in the 18 months it has been active.

In 1996, the Willis River (part of the James River Basin, located in Cumberland and Buckingham Counties) was placed on the Commonwealth of Virginia's 1996 303(d) list because of violations of the fecal coliform bacteria water quality standard. In 2005, DCR and Peter Francisco Soil and Water Conservation District, with extensive public input, started a five-year TMDL project to reduce fecal coliform levels in the Willis River through implementation of agricultural and residential BMPs in accordance with an approvable TMDL implementation plan.

As of March 2007 numerous implementation actions had occurred to address the Willis River impairment, including: 1) 18 miles of livestock exclusion stream fencing installed or contracted for installation, resulting in removal of 2,500 livestock units from having direct stream access, 2) one loafing lot management system was contracted, 3) seven septic tanks have been pumped out, 4) one septic system has been repaired, and 5) two new septic system installations were contracted or completed.

As a result of these actions, bacteria levels are approaching the 10% violation rate threshold for delisting the Willis River from the Impaired Waters List.

III. Cost Containment Mechanisms

Report on progress of developing cost control guidelines as directed by HB 1710/SB 771

Development of WQIF Cost Control Measures and Guidelines

Legislation passed by the 2007 General Assembly (HB 1710/SB 771) called for identification and evaluation of options to ensure efficient use of grants awarded from the Water Quality Improvement Fund (WQIF) Point Source Program. The process used to develop these cost control measures involved considerable public participation, through formation of a Technical Advisory Group (TAG) with representatives from local government, publicly owned wastewater treatment facilities, the conservation community and DEQ technical staff, as well as a 30-day public review and comment period that closes on 9/14/07. As specified in the relevant Virginia Code provision, the TAG considered the following:

(i) Evaluation of eligible and appropriate costs;
(ii) Applicability of the Virginia Public Procurement Act (VA Code § 2.2-4300);
(iii) Voluntary nutrient credit trading;
(iv) Basing grant amounts on facility optimization using full life-cycle cost evaluation;
(v) The ability to limit or exclude reimbursements based upon a comparison of costs to upgrade or build versus the purchase of credits; and,
(vi) The ability to prioritize grant agreements based on the river-basin optimization plans submitted under the Watershed General Permit for Nutrient Discharges and Trading.

In addition to these particular items, the TAG also discussed:

- Alternative procurement methods such as Design-Build and Public-Private Partnerships;
- Use of Value Engineering (VE) Analysis; and,
- Possibilities for influencing the bidding climate to reduce market "premiums."

Based on this work, DEQ has proposed revisions to existing WQIF cost control measures and will incorporate these into agency guidance that governs the award and use of grants. Highlights of these revisions and additions are:

- Require application of the Public Procurement Act to all grantees, with no exception for localities with population less than 3,500, to assure costs are fair and competitive.
- Add references for anticipated costs of construction materials and skilled labor (e.g., Association of General Contractors, U.S. Bureau of Labor Statistics indices).
- State support for "Design-Build", Public-Private Partnerships, or other approved procurement methods as alternatives to competitive, sealed bidding.
- Require VE Analysis when a project's capital cost estimate for the nutrient reduction technology (NRT) portion is equal to or greater than $10 million; analysis is optional for smaller projects.
- Require a Life Cycle Cost Evaluation for the selected NRT system and the other feasible options considered, and also on an "as needed" basis for individual NRT units.
- Criteria used to determine if nutrient credit exchange would be significantly more cost-effective than NRT installation will include the cost per pound of nutrient reduced at design flow, cost per million gallons treated, and other environmental factors such as local receiving water considerations and treatment benefits beyond nutrient reduction (e.g., treating septage to encourage proper management of on-site systems).
- To aid the viability of the Nutrient Credit Exchange Program, require that a portion of any credits generated by a facility receiving WQIF funds will be made available for trading.

The draft report is available for review/comment from the Virginia "Town Hall" weblink, http://www.townhall.state.va.us/L/ViewNotice.cfm?gnid=150, and the DEQ-WQIF weblink, http://www.deq.virginia.gov/bay/WQIFdraftCostControlReport.pdf.

Revisions to the Form of Agreement for WQIF Point Source Grants

Legislation passed by the 2007 General Assembly (HB 1710/SB 771) substantially changed the grant reimbursement process under the Water Quality Improvement Fund (WQIF) Point Source Program. Previously, grant payments were made not more frequently than monthly for eligible costs incurred by the grantee. Now, two new principals apply:

1. Grant reimbursements are to be made only after the grantee has actually expended funds on eligible costs (invoices must be paid, not just received by the grantee); and
2. The grant shall be disbursed in four phases, identified by incremental percentages of 25%, 50%, 75% and 100% expenditure of the grantee's share of the cost of Nutrient Reduction Technology (NRT).

DEQ has revised the generic form of agreement to incorporate the new reimbursement method, with changes approved by the Office of the Attorney General, and will use this new form for all grants awarded after July 1, 2007. Since many grantees also receive low interest loans from the Virginia Clean Water Revolving Loan Fund (another financing source administered by DEQ) to cover the locality's share of the project costs as well as components of the project that were ineligible for WQIF grant funds, the new provisions were written with the following objectives:

- Grant and loan payments do not exceed work done to date so these programs continue as reimbursement programs.
- Meet the requirements of the new law with the least detrimental effect on localities and the State funding sources.
- Make the process workable so grantees can determine accurate reimbursement amounts and know when a payment can be requested.
- Regardless of the type of work completed during any payment period, operate under a simplifying assumption that State grant and loan payment amounts are based on a proportional distribution of overall project costs between: (a) grant-eligible and ineligible work; and (b) grant percentage of eligible work vs. local share of eligible work. This helps both the localities and DEQ in processing payment requests.
- WQIF payments made in four "phases," not necessarily limited to four payments.
- Multiple payments may be made in the fourth phase, not more frequently than monthly, after the grantee has expended 100% of the local share of the cost of NRT.
- Provide formulas to aid the grantee in calculating the amount for reimbursement requests.